Response to Comments
Chapter 7B: RECOVER Activities Update
Date of Response: 10/13/2009
Authors of Comments: Neal E. Armstrong (AA) and Robert Ward (A)
Level of Panel Review: Accountability (Primary) and Integrative (X)

Comment 1: As defined in Chapter 7A, RECOVER provides essential support to CERP in meeting its goals and purposes by applying a system wide perspective to program planning and implementation. Its role in organizing and applying scientific and technical information and eventually doing evaluations and assessments is critical to the implementation of all CERP projects. Because this chapter is devoted to RECOVER activities, it would be helpful to introduce and define the RECOVER program before launching into an update of activities during 2009. Introductions to other project update chapters specify the law, purpose, and connections to other programs as a background to the following project updates. Given the complex interwoven nature of environmental programs and activities in South Florida, such an introduction is necessary for Chapter 7A. From reading other chapters (e.g., line 133 on page 1-10), it is assumed that Chapter 7B is discussing projects associated with a State of Florida initiative to fast track some of the CERP projects.

Response 1: We apologize for the vagueness of our first draft of Chapter 7B for the 2010 SFER. We were asked not to repeat text already provided in earlier SFERs, so we have not provided a description of the RECOVER program since 2005. We are glad to have new reviewers who have pointed out that we do need to provide more details so readers unfamiliar with RECOVER will not be confused as to the purpose and mission of RECOVER.

Chapter 7B is not discussing projects associated with a State of Florida initiative to fast track some of the CERP projects. We are an integral part of the full CERP program and the projects discussed in the chapter are not specific to the State of Florida initiative. RECOVER's mandates are federal, not state.

The chapter will now contain the following paragraphs to introduce and define the RECOVER program:

RECOVER (Restoration Coordination and Verification) is an interagency, interdisciplinary team authorized by Section 385.20 of the *Programmatic Regulations for the Comprehensive Everglades Restoration Plan* (DOD, 2003). The program is sponsored by the U.S. Army Corps of Engineers (Corps) and the South Florida Water Management District (District). While the Corps and the District are the program sponsors, it is directed by the RECOVER Leadership Group, which consists of one member appointed by the following: Corps, District, U.S. Environmental Protection Agency (USEPA), National Oceanic and Atmospheric Administration

(NOAA), U.S. Geological Survey (USGS), National Park Service, Miccosukee Tribe, Seminole Tribe, Florida Department of Agriculture and Consumer Services, Florida Department of Environmental Protection (FDEP), and Florida Fish and Wildlife Conservation Commission (FWC). For more information on the CERP Programmatic Regulations see http://www.evergladesplan.org/pm/progr_regs.aspx.

The role of RECOVER is to organize and apply scientific and technical information in ways that are most effective in supporting the objectives of the Comprehensive Everglades Restoration Plan (CERP), and to ensure that CERP's systemwide goals and purposes are achieved.

RECOVER applies science and the tools of science to three broad mission areas:

- Assessment: Measure (through monitoring) and interpret responses in natural and human systems to form a pre-CERP baseline and to monitor changes in the environment as CERP projects are brought on line (Section 385.20(e)(1))
- Evaluation: Work with CERP project teams to evaluate (through predictive modeling and other methods) and maximize the contribution made by each project to the systemwide performance of CERP (Section 385.20(e)(2))
- Planning and Integration: Identify potential improvements in the design and operation of CERP, consistent with plan objectives, and strive for consensus regarding scientific and technical aspects of the plan (Section 385.20(e)(3))

RECOVER's three mission areas are the primary means of improving CERP systemwide performance as implementation of individual CERP projects proceeds. The evaluation process (1) incorporates the Comprehensive Plan approved by the Water Resources Development Act of 2000 (U.S. Congress, 2000) and conceptual ecological models into a set of systemwide evaluation performance measures, (2) uses this set of performance measures to evaluate (or predict) systemwide performance of CERP and to support individual CERP projects in development of project management plans and project implementation reports, (3) assists in refinement of project designs and operations, and (4) refines models and performance measures. The assessment process (1) develops systemwide assessment performance measures based on conceptual ecological models, (2) develops a monitoring and assessment plan and strategy based on these models and performance measures, (3) uses results of monitoring and supporting research described in the plan to assess the success of CERP implementation through issuance of integrated assessment reports, and (4) assists in refining CERP design and operation. The planning and integration process (1) performs CERP update modeling and contingency planning and (2) provides options for management approval to refine the overall CERP or operations.

These missions provide RECOVER with the organizational framework for meeting its overall objectives of predicting and measuring CERP performance, refining and improving CERP during

the implementation period, and ensuring that a systemwide perspective is maintained throughout the restoration program.

Assessment, evaluation, and planning and integration activities will encompass all CERP projects, pilot projects, and critical projects, as appropriate. RECOVER may also evaluate other non-CERP projects that can potentially affect CERP's ability to achieve its goals and purposes. RECOVER will function throughout the entire duration of the CERP process, continuously seeking ways to improve the plan. Evaluation and assessment activities, as well as data from cause-and-effect research and from new technologies, will shape planning and integration efforts toward this goal. The interaction of these activities and how they interact within the CERP program are described in the *CERP Adaptive Management Strategy* (RECOVER, 2006), which can be viewed online at www.evergladesplan.org/pm/recover/recover_docs/am/rec_am_stategy_brochure.pdf.

For more information, please see the RECOVER web pages on evergladesplan.org: http://www.evergladesplan.org/pm/recover/recover.aspx.

DOD. 2003. Programmatic Regulations for the Comprehensive Everglades Restoration Plan; Final Rule. Department of Defense, 33 CFR Part 385, Federal Register, November 12, 2003.

RECOVER. 2006. Comprehensive Everglades Restoration Plan Adaptive Management Strategy. Restoration Coordination and Verification Program, c/o United States Army Corps of Engineers, Jacksonville District, Jacksonville, Florida, and South Florida Water Management District, West Palm Beach, FL. April 2006.

U.S. Congress. 2000. Water Resources Development Act of 2000. Public Law No. 106-541, signed December 11, 2000. Title VI, Section 601, of the act, describes authorizations specific to the Comprehensive Everglades Restoration Plan.

Comment 2: Comments have been made in other chapters about the monitoring programs being used, sampling procedures, key indicators of water quality and ecosystem health, and so forth. It is important that the District provide a mechanism for those comments to find their way to the RECOVER team.

Response 2: Most other SFER chapters have authors that participate in RECOVER technical teams and subteams. In addition, scientists from many other agencies also participate. The information mentioned above finds its way to RECOVER by their participation. The RECOVER program has now been absorbed into the much larger Restoration Sciences Department with the intention of providing better communication and collaboration between District and RECOVER scientists.

Comment 3: The interactive web reporting system being developed is an innovative approach to not only view the District's systems but also to serve the District's stakeholders who wish to know more about the progress being made in restoring the Everglades.

Response 3: We agree that the web reporting system will serve a larger audience and that is its intention. However, the system status report interactive web pages will focus only on the assessments being performed under the CERP Monitoring and Assessment Program (MAP) (RECOVER, 2004, 2006), and not on District systems, though there is some overlap.

RECOVER. 2004. CERP Monitoring and Assessment Plan: Part 1 Monitoring and Supporting Research. Restoration Coordination and Verification Program, c/o United States Army Corps of Engineers, Jacksonville District, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL. www.evergladesplan.org/pm/recover/recover_map.aspx.

RECOVER. 2006. Monitoring and Assessment Plan (MAP), Part 2 2006 Assessment Strategy for the MAP, Final Draft. Restoration Coordination and Verification Program, c/o United States Army Corps of Engineers, Jacksonville District, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL. December 2006. www.evergladesplan.org/pm/recover/recover_map_part2.aspx

Accountability Review Questions

Comment 4: What is a 'full system status report' (line 25)? What is its purpose? Is this an accountability report for all environmental projects in South Florida?

Response 4: System status reports are not accountability reports. A system status report provides an in-depth assessment of the monitoring data provided by the RECOVER MAP program, historical data, and data from other sources that pertain to the assessments. These other sources include federal, state and local agencies, and universities. Currently, the monitoring data is being assessed to establish pre-CERP conditions and trends. This is essential for determining whether the changes resulting from CERP implementation are effective in restoring the Everglades ecosystem. A key goal of the assessment process is to determine if observed changes in variables are true deviations from natural variability and ultimately whether those changes might be caused or remedied by CERP.

The six broad purposes of the system status reports are as follows:

1. Assess and document progress towards meeting performance measure targets and interim and long-term goals

2. Detect undesirable system responses as early as possible in order to minimize the adverse effects of these responses
3. Provide a basis for identifying options for improvements in the design and operation of CERP projects and components
4. Develop reports on the status and progress of the CERP for the agencies involved, the public, the U.S. Congress, the Florida Legislature and stakeholders
5. Evaluate CERP hypotheses and performance measures and revised conceptual ecological models as appropriate
6. Enhance predictive ability through improvements in simulation models before and after project construction

We referred to the document as a "full" system status report to differentiate between it and the first two system status reports, which were only partial assessments (RECOVER, 2007a, b). We will drop the "full" as it is confusing. The first two system status reports can be viewed at www.evergladesplan.org/ pm/recover/assess_team.aspx.

As the above paragraph indicates system status reports are much more limited in scope than your comment suggests. In the text of the chapter we will specify that it is a CERP System Status Report to clarify its scope. We will also include the text of this response in our revised chapter to clarify the purpose of the report.

RECOVER. 2007a. Final Draft 2006 System Status Report, Pilot Assessment System-wide Report. Restoration Coordination and Verification Program, c/o U.S. Army Corps of Engineers, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL. February 2007. www.evergladesplan.org/ pm/recover/assess_team_ssr_2006.aspx.

RECOVER. 2007b. 2007 System Status Report. Restoration Coordination and Verification Program c/o U.S. Army Corps of Engineers, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL. July 2007. www.evergladesplan. org/pm/recover/assess_team_ssr_2007.aspx.

Comment 5: What are hypothesis clusters (line 34)?

Response 5: Hypothesis clusters are a group of hypotheses that explicitly describe cause-and-effect relationships within the natural system at a regional, or module, level. We use four regional modules: Lake Okeechobee, Northern Estuaries, Greater Everglades Wetlands, and Southern Coastal Systems.

RECOVER uses conceptual ecological models to develop these working hypothesis clusters, which describe how various defining ecological components of the ecosystem have responded, and will continue to respond, to stressors. One or more performance measures have been developed for the critical stressors and defining ecological components. These measures are used

to track the progress of the restoration effort in achieving its goal. The goal of the assessments presented in the system status reports is to integrate and interpret the multiple performance measures that comprise the hypotheses for a particular spatial domain.

For more information on the conceptual ecological models and hypothesis clusters and how they are used to assess the system, please see the Monitoring and Assessment Plan (MAP), Part 2 2006 Assessment Strategy for the MAP (RECOVER, 2006). This document can be found online at www.evergladesplan.org/pm/recover/recover_map_part2.aspx.

This text will be incorporated into the revised chapter.

RECOVER. 2006. Monitoring and Assessment Plan (MAP), Part 2 2006 Assessment Strategy for the MAP, Final Draft. Restoration Coordination and Verification Program, c/o United States Army Corps of Engineers, Jacksonville District, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL. December 2006. www.evergladesplan.org/pm/recover/recover_map_part2.aspx

RECOVER. 2007. Development and Application of Comprehensive Everglades Restoration Plan System-wide Performance Measures. Restoration Coordination and Verification Program, c/o United States Army Corps of Engineers, Jacksonville District, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL. October 17, 2007. www.evergladesplan.org/pm/recover/eval_team_perf_measures.aspx.

Comment 6: What is the connection between ‘assessment modules’ and ‘fast tracking projects’?

Response 6: There is no connection between the two.

Comment 7: Is RECOVER simply an assessment procedure for tracking improvements to South Florida’s hydrology, water quality, and ecosystem health and reporting it to citizens (via a webpage)?

Response 7: No. Please see the response to Comment 1 for a detailed description of the RECOVER program.

Comment 8: In the High Resolution Hydrology and Ecological Tools section (Lines 155-173), there is no mention of the simplified models that District staff agreed to begin developing and using in their response to Panel’s suggestions for the 2009 SFER. There was no mention of these models in Chapter 12 as well. Does the District plan to use these simplified models? If so, what is the plan for doing so?

Response 8: We are not sure what ‘District staff’ agreed to begin developing and using simplified models in response to the Panel’s suggestions for the 2009 SFER, but this was not a

suggestion directed at RECOVER and, therefore, we cannot address these specific questions. That said, District staff working within the RECOVER program do communicate with other District staff, as well as staff from other agencies, developing and utilizing models so information and tools are shared.

Comment 9: The Water Budget Accounting System (Lines 201-216) will allow tracking of system-wide water budgets. Does the District plan to use this system to determine such things as annual freshwater inflow into each estuarine system?

Response 9: At this point in time, RECOVER plans on using the water budget accounting system to assist in evaluating final alternatives developed by project teams and suggested modifications to the overall CERP. In the future, RECOVER also hopes to use this tool in both the water volume interim goal (www.evergladesplan.org/pm/recover/recover_docs/igit/igit_mar_2005_report/app_ig_3-1_water_volume_kjj.pdf) and the water volume interim target (www.evergladesplan.org/pm/recover/recover_docs/igit/igit_mar_2005_report/ig 5-1watervolume.pdf) (RECOVER, 2005). District modelers are aware of the development of this tool so we expect it will be used beyond RECOVER.

RECOVER. 2005. The RECOVER Team's Recommendations for Interim Goals and Interim Targets for the Comprehensive Everglades Restoration Plan. Restoration Coordination and Verification Program, c/o United States Army Corps of Engineers, Jacksonville District, Jacksonville, Florida, and South Florida Water Management District, West Palm Beach, FL. www.evergladesplan.org/pm/recover/igit_subteam.aspx

Comment 10: Do the "performance measures" mentioned on line 294, include actual water quality data and trends contained in this data?

Response 10: Yes and more. The performance measures utilize actual water quality, hydrologic and ecological data gathered by the MAP program and other programs as is described in our response to Comment 4.

Performance measures are used to evaluate (predict) the response of the system to project alternatives as well as to assess the systems response to restoration efforts. In the latter use, data is collected, analyzed and integrated and then applied to the performance measures. This information is also used to feed into the predictive models to improve their predictive capabilities.

For information on the development and use of performance measures see the *Development and Application of CERP System-wide Performance Measures* (RECOVER 2007), which can be viewed at www.evergladesplan.org/pm/recover/perf_systemwide.aspx. Documentation sheets for each performance measure can be accessed from www.evergladesplan.org/pm/recover/eval_team_perf_measures.aspx.

This text will be incorporated into the revised chapter.

RECOVER. 2007. Development and Application of Comprehensive Everglades Restoration Plan System-wide Performance Measures. Restoration Coordination and Verification Program, c/o United States Army Corps of Engineers, Jacksonville District, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL. October 17, 2007. www.evergladesplan.org/pm/recover/eval_team_perf_measures.aspx.

Comment 11: What data are used to establish the 'existing condition base' mentioned on line 315?

Response 11: The existing condition base provides project planners with a snapshot of project area and system conditions when project planning begins. The assumptions for the existing condition base modeling scenario, which should only be used for planning purposes, are listed in the following table. In the SFER chapter, we will reference the Band 1 report, which will be published by then, providing a link to these conditions.

Feature	Existing Condition Baseline
Projects	• Existing projects in the system as of December 2006 • Updates to the operations of the system up to January 2009 • All non-CERP projects with approved operating manuals are modeled; there were no CERP projects with approved operating manuals as of December 2006.
Climate	• Climatic period of record is from 1965 to 2000 • Rainfall estimates have been revised and updated for 1965-2000 • Revised evapotranspiration methods have been used for 1965-2000 • Irrigated acreages for the Lower East Coast (LEC) were updated to be consistent with the existing legal uses as of 2005 for use in computing evapotranspiration demands
Topography	• National Geodetic Vertical Datum 29 • U.S. Geological Survey (USGS) High Accuracy Elevation Data (HAED) • USGS Light Direction and Ranging (LiDAR) data (May 1999) for WCA 3A north of Alligator Alley • Stormwater Treatment Area (STA) surveys from 1990s, with STA 6 lowered as per Everglades Construction Project staff • Aerometric Corp. 1986 survey of the 8.5-square mile area • Estimate of Everglades Agricultural Area (EAA) subsidence • Other data as in South Florida Water Management Model (SFWMM) version 3.7 • Florida Fish and Wildlife Conservation Commission (FWC) survey 1992 for the Holey Land Wildlife Management Area (WMA) • FWC 1992 survey data for Rotenberger WMA • DHI-gridded data from Kimley–Horn contracted survey of EAA 2002-2003. Regridded to 2 x 2 scale for EAA outside of STAs and WMAs
Sea Level	• Sea level data from six long-term National Oceanic and Atmospheric Administration (NOAA) stations were used to generate a historic record to use as sea level boundary conditions for the 1965 to 2000 evaluation period

Feature	Existing Condition Baseline
Land Use	• Land use based on 1995 Florida Land Use and Cover Classification System (FLUCCS) data, updated in the LEC urban areas using 2000 aerial photography (2000 Composite Land Use)
Natural Area Land Cover (Vegetation)	Vegetation classes and their spatial distribution in the natural areas comes from the following data: • Walsh 1995 aerial photography in Everglades National Park • Rutchey 1995 classification in WCA 3B, WCA 3A north of Alligator Alley and the Miami Canal, WCA 2A and WCA 2B • Richardson 1990 data for the Arthur R. Marshall Loxahatchee National Wildlife Refuge • FLUCCS 1995 for Big Cypress National Preserve, Holey Land and Rotenberger WMAs and WCA 3A south of Alligator Alley and Miami Canal
Lake Okeechobee Service Area	• Lower Istokpoga, North Lake Shore and Northeast Lake Shore demands and runoff based on Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS) modeling of 2000 land use
Lake Okeechobee	• Water Supply and Environmental (WSE) Regulation Schedule • Lake Okeechobee Water Shortage Management (LOWSM) • Tributary conditions applied with longer wet or dry conditions • Emergency flood control back pumping to Lake Okeechobee from the EAA • "Temporary" forward pumps as follows: - S354 – 400 cubic feet per second (cfs) - S351 – 600 cfs - S352 – 400 cfs • All pumps turn on when Lake Okeechobee stage falls below 10.2 feet and turn off when stages recover to greater than 11.2 feet • Kissimmee River inflows based on interim schedule for Kissimmee Chain of Lakes using the Upper Kissimmee Chain of Lakes (UKISS) model • Flood control releases south of the lake are constrained by WCA regulation schedules • Only STA 3/4 would be used to treat Lake Okeechobee regulatory releases to the south • Best management practice (BMP) makeup water deliveries to WCAs are not made •
Caloosahatchee River Basin	• Caloosahatchee River and S-4 basin irrigation demands and runoff were estimated using the AFSIRS method based on 2006 planted acreage • Public water supply daily intake from the river (~10 million gallons per day [mgd]) is included in the analysis
St. Lucie Canal Basin	• St. Lucie Canal basin demands estimated using the AFSIRS method based on 2000 planted acreage • Basin demands include the Florida Power and Light reservoir at Indiantown
Seminole Brighton Reservation	• Brighton reservation demands were estimated using AFSIRS method based on existing planted acreage in a manner consistent with that applied to other basins not in the distributed mesh of the SFWMM • The 2-in-10 demand set forth in the Seminole Compact Work plan equals 2,262 million gallons per month (MGM). AFSIRS modeled 2-in-10 demands equaled 2,383 MGM. • While estimated demands, and therefore deliveries, for every month of simulation do not equate to monthly entitlement quantities as per Table 7, Agreement 41-21 (Nov. 1992), tribal rights to these quantities are preserved • Supply-Side Management applies to this agreement

Feature	Existing Condition Baseline
Seminole Big Cypress Reservation	• Big Cypress Reservation irrigation demands and runoff were estimated using the AFSIRS method based on existing planted acreage in a manner consistent with that applied to other basins not in the distributed grid of the SFWMM • The 2-in-10 demand set forth in the Seminole Compact Work Plan equals 2,606 MGM • AFSIRS modeled 2-in-10 demands equaled 2,659 MGM • While estimated demands, and therefore deliveries, for every month of simulation do not equate to monthly entitlement quantities as per the District's Final Order and Tribe's Resolution establishing the Big Cypress Reservation entitlement, tribal rights to these quantities are preserved • Supply-Side Management applies to this agreement
Seminole Hollywood Reservation	• Hollywood Reservation demands are set forth under VI. C of the Tribal Rights Compact • Tribal sources of water supply include various bulk sale agreements with municipal service suppliers
Everglades Agricultural Area	• EAA irrigation demands are simulated using climatic data for the 36-year period of record and a soil moisture accounting algorithm, with parameters calibrated to match historical regional supplemental deliveries from Lake Okeechobee • SFWMM EAA runoff and irrigation demand response to rainfall was calibrated for 1984-1995 and verified for 1979-1983/1996-2000. No runoff reduction adjustment was necessary to account for BMPs • EAA cells in the Miami Canal basin between STA 5 and STA 6 are not production cells (shrub land use). Then, no irrigation demands are required in this area. Runoff from this area is part of the Miami Canal basin.
Everglades Construction Project Stormwater Treatment Areas	• STA 1E: 5,132 acres total treatment area • STA 1W: 6,670 acres total treatment area • STA 2: expanded with cell 4: 8,243 acres total treatment area • STA 3/4: 16,543 acres total treatment area • STA 5: expanded with cell 3: 6,165 acres total treatment area • STA 6: expanded with phase 2: 2,254 acres total treatment area • Operation of STAs assumes maintenance of a 6-inch minimum depth • Water quality surrogate for STA 3/4 loading capacity (in terms of a long term annual average flow) is 600,000 acre-feet ±2% • Lake Okeechobee regulatory releases via S-351 and S-354 to the STAs was limited to 60,000 acre-feet per year
Holey Land Wildlife Management Area	• Operations are similar to the existing condition as in the 1995 base simulation for the LEC Regional Water Supply Plan (SFWMD, 2000) as per the memorandum of agreement between the FWC and the South Florida Water Management District (District)
Rotenberger Wildlife Management Area	• Interim operational schedule as defined in the Operation Plan for Rotenberger WMA
Arthur R. Marshall Loxahatchee National Wildlife Refuge (WCA 1)	• Current Central and South Florida Project (C&SF) Regulation Schedule; includes regulatory releases to tide through LEC canals • No net outflow to maintain minimum stages in the LEC Service Area canals (salinity control), if water levels are less than minimum operating criteria of 14 feet. The bottom floor of the schedule is the area below 14 feet. Any water supply releases below the floor will be matched by an equivalent volume of inflow from Lake Okeechobee • Structure S10E connecting the refuge to the northeastern portion of WCA 2A is no longer considered part of the simulated regional system

Feature	Existing Condition Baseline
Water Conservation Areas 2A and 2B	• Current C&SF regulation schedule; includes regulatory releases to tide through LEC canals • No net outflow to maintain minimum stages in the LEC Service Area canals (salinity control), if water levels in WCA 2A are less than minimum operating criteria of 10.5 feet. Any water supply releases below the floor will be matched by an equivalent volume of inflow from Lake Okeechobee
Water Conservation Areas 3A and 3B	• Current C&SF regulation schedule for WCA-3A, as per Water Control Plan – Interim Operational Plan (IOP) for protection of the Cape Sable seaside sparrow- C&SF Project for Flood Control and other Purposes (USACE, June 2002) • Includes regulatory releases to tide through LEC canals. Documented in Water Control Plan (USACE, June 2002) • No net outflow to maintain minimum stages in the LEC Service Area canals (salinity control), if water levels are less than minimum operating criteria of 7.5 feet in WCA 3A. Any water supply releases below the floor will be matched by an equivalent volume of inflow from Lake Okeechobee • Tamiami Trail culverts east of the L67 Extension are simulated
Public Water Supply and Irrigation	• Public water supply wellfield pumpages and locations are based on estimated permitted data for calendar year 2006 • Irrigation demands are based upon estimated permitted 2005 composite land use and calculated using AFSIRS, reduced to account for landscape and golf course areas irrigated using reuse water and landscape areas irrigated using public water supply
Other Natural Areas	• For the Northwest Fork of the Loxahatchee River, the District operates the G-92 structure and associated structures to provide approximately 50 cfs over Lainhart Dam to the Northwest Fork, when sufficient water is available in C-18 Canal • Flows to Pond Apple Slough through S-13A are adjusted in the model to approximate measured flows at the structure • Flows to Biscayne Bay are simulated through Snake Creek, North Bay, the Miami River, Central Bay and South Bay
Canal Operations	• C&SF system and operating rules in effect in 2006 • Includes operations to meet control elevations in the primary coastal canals for the prevention of saltwater intrusion • Includes existing secondary drainage/water supply system • C-4 Flood Mitigation Project • C-11 Water Quality Treatment Critical Project (S-381 and S-9A) • S-25B and S-26 pumps are not modeled since they are used very rarely during high tide conditions and the SFWMM uses a long-term average daily tidal boundary • Northwest Dade Lake Belt area assumes that the conditions caused by currently permitted mining exist and that the effects of any future mining are fully mitigated by industry • ACME Basin A flood control discharges are sent to C-51, west of the S-155A structure, to be pumped into STA 1E. ACME Basin B flood control discharges are no longer sent into the Loxahatchee National Wildlife Refuge, but instead to C-51 East through the S155A structure • Releases from WCA 3A to Everglades National Park and the South Dade Conveyance System (SDCS) will follow the IOP: - Decreased S-12 flood control discharges and increased flood control discharges to SDCS - Structures S-343A, S-343B, S-344 and S-12A are closed November 1 to July 15

Feature	Existing Condition Baseline
	- Structure S-12B is closed January 1 to July 15 - Structure S-12C is closed February 1 to July 15 - SDCS operations will follow IOP for protection of the Cape Sable seaside sparrow
Western Basins	• Estimated and updated historical inflows from western basins at two locations: G-136 and G-406 • G-406 location represents potential inflow from the C-139 Basin into STA 5 • Data for the period 1978 - 2000 is the same as the data used for the C-139 Basin Rule development
Big Cypress National Preserve	• Tamiami Trail culverts are not modeled in SFWMM due to the coarse (2 mile x 2 mile) model resolution
Everglades National Park	• Water deliveries to Everglades National Park are based upon the IOP • When stages in WCA 3A fall in Zone E1 of the regulation schedule and the stage at G-3273 is below the critical threshold, S-333 flows are directed to Everglades National Park, a fraction of which is released through S334. This simulation is consistent with IOP ALT7RP2 • Partial construction of C-111 project reservoirs consistent with constructed features as of December 2006 • Tamiami Trail culverts east of the L67 Extension are simulated
Water Shortage Rules	• Reflects the existing water shortage policies in November 2007 as in District Chapters 40E-21 and 40E-22 of the Florida Administrative Code (FAC)

Comment 12: Is one of the 'related fields, mentioned in lines 332-333, water quality conditions?

Response 12: Yes, but only insofar as there is new information available since the publication of "The Yellow Book" which might influence CERP planning or design considerations.

Integrative Review Questions

Comment 13: Chapter 3A uses attainment of water quality standards as a measure (or index) of environmental restoration. The standards are established to insure health of the Everglades ecosystem. The section on 'New Tool Development' (beginning on line 149) suggests that additional ecological goals will be established. Do the water quality restoration goals (Chapter 3A) play a role in the ecological models described in Chapter 7A? Are they related?

Response 13: RECOVER does use water quality standards as a measure of environmental restoration, but we also use many other measures. Two of the tools described under 'New Tool Development' in Chapter 7B, the Oyster Habitat Suitability Index and the Geo-Referenced Interactive Data Analysis System Tool, utilize salinity data as well as hydrology data. The water accounting system, and the high resolution hydrology model and associated ecological tools, all utilize output from the South Florida Water Management Model (SFWMM), which is strictly a hydrologic model.

Comment 14: What is the connection between MAP (lines 136-148 and the discussion beginning at line 218) and data available in DBHYDRO? DBHYDRO provides the data used to prepare Chapters 2 and 3 – is another database being developed for use in RECOVER?

Response 14: RECOVER utilizes water quality and hydrological data stored in DBHYDRO. RECOVER also maintains a database of ecological data collected as part of the MAP or other sources that are used in assessments and to refine predictive models. This database is referred to as DASR (Data Access, Storage and Retrieval) and is located on the web-based CERPzone (www.cerpzone.org). This application archives and manages RECOVER, CERP Project, geographic information system (GIS), and modeling data.

Comment 15: What is the connection between efforts to refine MAP (line 140) and efforts to re-engineer the District's water quality monitoring programs, discussed in the last two SFER reports?

Response 15: The two efforts are separate but compatible. RECOVER's refinement of the MAP focuses on ecological data collection. District RECOVER staff have been active participants in the effort to re-engineer the District's water quality monitoring program.

Comment 16: Lines 201-217 describe system wide water budget accounting. Are there efforts to also describe system wide accounting for phosphorus, nitrogen, and sulfates – key water quality variables?

Response 16: RECOVER is not currently working on systemwide accounting tools for water quality variables though there is a clear understanding among RECOVER staff that these water quality variables may eventually need to be included in our assessment activities.

Comment 17: How does the 'adaptive management' strategy, discussion beginning on line 268, relate to water quality trend assessments presented in Chapters 3A, 4, 5, 10, 11, and 12? In other words, these other chapters are currently reporting on the collection of data to assess and adjust management and operations of restoration projects, thus possibly creating a duplication of effort.

Response 17: The CERP Adaptive Management Strategy (RECOVER 2006) has a much larger scope than water quality trends and is designed specifically for CERP (see next paragraph). RECOVER takes into consideration and often utilizes efforts already being conducted by the District and other agencies when conducting assessments, which are described in the response to Comment 4, to avoid duplication of efforts.

Adaptive management provides resource managers with an active strategy for dealing with the considerable uncertainties that characterize management of large natural ecosystems. The purpose of the CERP Adaptive Management Strategy (RECOVER, 2006) is to extend and integrate the practice of adaptive management across all components of the CERP program to fully realize the benefits of this management approach to achieving ecosystem restoration goals. This strategy was described in detail in the Appendix 7B-1 of the 2007 SFER (my.sfwmd.gov/

portal/page/portal/pg_grp_sfwmd_sfer/portlet_prevreport/volume1/appendices/v1_app_7b-1.pdf). A reference to this past appendix will be included in this year's chapter.

RECOVER. 2006. Comprehensive Everglades Restoration Plan Adaptive Management Strategy. Restoration Coordination and Verification Program, c/o United States Army Corps of Engineers, Jacksonville District, Jacksonville, Florida, and South Florida Water Management District, West Palm Beach, FL. April 2006. www.evergladesplan.org/pm/recover/recover_docs/am/rec_am_stategy_brochure.pdf